

WHAT IS CLAIMED IS:

1. A method of preventing or treating a disease characterized by amyloid deposit in a patient, comprising administering an effective dosage of an antibody that specifically binds to the amyloid deposit or a component thereof to the patient.
2. The method of claim 1, wherein the disease is Alzheimer's disease.
3. The method of claim 1, wherein the amyloid deposit comprises aggregated A β peptide.
4. The method of claim 1, wherein the patient is a human.
5. The method of claim 1, wherein the patient is asymptomatic.
6. The method of claim 1, wherein the patient is under 50.
7. The method of claim 1, wherein the patient has inherited risk factors indicating susceptibility to Alzheimer's disease.
8. The method of claim 1, wherein the patient has no known risk factors for Alzheimer's disease.
9. The method of claim 2, wherein the antibody specifically binds to A β peptide.
10. The method of claim 9, wherein the antibody is a human antibody.
11. The method of claim 9, wherein the antibody is a humanized antibody.
12. The method of claim 9, wherein the antibody is a chimeric antibody.
13. The method of claim 9, wherein the antibody is a mouse antibody.
14. The method of claim 9, wherein the antibody is a polyclonal antibody.
15. The method of claim 9, wherein the antibody is a monoclonal antibody.

16. The method of claim 14, wherein the antibody is a rabbit antibody.
17. The method of claim 1, further comprising administering an effective dosage of a second antibody that binds to the amyloid deposit or a component thereof.
18. The method of claim 15, wherein the isotype of the antibody is IgG1 or IgG4.
19. The method of claim 15, wherein the isotype of the antibody is IgG2 or IgG3.
20. The method of claim 9, wherein the antibody is a Fab fragment.
21. The method of claim 9, wherein a chain of the antibody is fused to a heterologous polypeptide.
22. The method of claim 9, wherein the dosage of antibody is at least 1 mg/kg body weight of the patient.
23. The method of claim 9, wherein the dosage of antibody is at least 10 mg/kg body weight of the patient.
24. The method of claim 9, wherein the antibody is administered with a carrier as a pharmaceutical composition.
25. The method of claim 9, wherein the antibody binds to an epitope within residues 1-28 of A β ,
26. The method of claim 25, wherein the antibody binds to an epitope within residues 1-10 of A β
27. The method of claim 25, wherein the antibody binds to an epitope within residues 1-16 of A β .

28. The method of claim 25, wherein the antibody binds to an epitope within residues 1-5 of A β .

29. The method of claim 9, wherein the antibody is a human antibody to A β prepared from B cells from a human immunized with an A β peptide.

30. The method of claim , wherein the human immunized with A β peptide is the patient.

31. The method of claim 9, wherein the antibody specifically binds to A β peptide without binding to full-length amyloid precursor protein (APP).

32. The method of claim 1, wherein the agent is administered intraperitoneally, orally, subcutaneously, intramuscularly, topically or intravenously.

33. The method of claim 1, wherein the antibody is administered by administering a polynucleotide encoding at least one antibody chain to the patient, wherein the polynucleotide is expressed to produce the antibody chain in the patient.

34. The method of claim 33, wherein the polynucleotide encodes heavy and light chains of the antibody, which polynucleotide is expressed to produce the heavy and light chains in the patient.

35. The method of 1, further comprising monitoring the patient for level of administered antibody in the blood of the patient.

36. The method of claim 1, wherein the antibody is administered in multiple dosages over a period of at least six months.

37. The method of claim 1, wherein the antibody is administered as a sustained release composition.

38. A method of preventing or treating Alzheimer's disease, comprising administering an effective dosage of a polypeptide comprising an active fragment of A β that induces an immune response to A β in the patient.

39. The method of claim 38, wherein the fragment comprises an epitope within amino acids 1-12 of A β .

40. The method of claim 38, wherein the fragment comprises an epitope within amino acids 1-16 of A β .

41. The method of claim 38, wherein the fragment comprises an epitope within amino acids 13-28 of A β .

42. The method of claim 38, wherein the fragment is free of at least the 5 C-terminal amino acids in A β 43.

43. The method of claim 38, wherein the fragment comprises up to 20 contiguous amino acids from A β .

44. The method of claim 39, wherein the fragment is administered with an adjuvant that enhances the immune response to the A β peptide.

45. The method of claim 44, wherein the adjuvant and the agent are administered together as a composition.

46. The method of claim 44, wherein the adjuvant is administered before the agent.

47. The method of claim 44, wherein the adjuvant is administered after the agent.

48. The method of claim 44, wherein the adjuvant is alum.

49. The method of claim 44, wherein the adjuvant is MPL.

50. The method of claim 44, wherein the adjuvant is QS-21.
51. The method of claim 44, wherein the adjuvant is incomplete Freund's adjuvant.
52. The method of claim 44, wherein the dosage of the fragment is greater than 10 micrograms.
53. A pharmaceutical composition comprising an active fragment of A β effective to induce a response to AB in a patient and an adjuvant.
54. A method of screening an antibody to A β or an active fragment of A β for use in treatment of Alzheimer's disease, comprising:
 - administering an antibody that specifically binds to A β or a fragment of AB to a transgenic animal disposed to develop characteristics of Alzheimer's disease;
 - detecting a reduction in the extent or rate of development of the characteristics relative to a control transgenic animal.
55. The method of claim 54, further comprising screening a population of antibodies to identify an antibody that binds to an epitope within amino acids 1-28 of A β .
56. A method for effecting rapid improvement of cognition in a subject having a condition or disease related to A β , comprising administering to the subject an effective amount of an anti- A β antibody.
57. The method of Claim 56, wherein the subject is human.
58. The method of Claim 57, wherein the condition or disease is Alzheimer's disease, Down's syndrome, cerebral amyloid angiopathy, or mild cognitive impairment.
59. The method of Claim 58, wherein the disease is Alzheimer's disease.

60. The method of Claim 58, wherein the disease or condition is Down's syndrome.

61. The method of Claim 58, wherein the disease or condition is cerebral amyloid angiopathy.

62. The method of Claim 58, wherein the disease or condition is mild cognitive impairment.

63. The method of any one of Claims 56 - 62, wherein the antibody has greater affinity for soluble A β than 10^{-9} M.

64. The method of any one of Claims 56 - 62, wherein the antibody has greater affinity for soluble A β than humanized antibody 266.

65. The method of any one of Claims 56 - 62, wherein the antibody has greater affinity for soluble A β than 10^{-10} M.

66. The method of anyone of Claims 56 - 62, wherein the antibody has greater affinity for soluble A β than 10^{-11} M.

67. The method of any one of Claims 56 - 66, wherein the antibody is a humanized or human antibody.

68. The method of Claim 67, wherein the antibody is a humanized 266 antibody, or an analog thereof.

69. The method of any one of claims 56-68, wherein the anti-A β antibody recognizes the same epitope that antibody 266 recognizes or competes with antibody 266 for binding to soluble A β .

70. The method of any one of claims 56-69, wherein the affinity is measured with respect to either A β 1-40 or A β 1-42.

71. The method of any one of claims 56-70, additionally comprising measuring cognition in the subject before administering the antibody.

72. The method of claim 71, additionally comprising measuring cognition in the subject after administering the antibody.

73. The method of claim 72, wherein the measure of cognition after administering the antibody shows a significant improvement in cognition compared with the measure of cognition before administering the antibody.

74. The method of any one of claims 56-73, additionally comprising measuring cognition in the subject after administrating the antibody.

75. The use of an anti- $A\beta$ antibody to prepare a medicament for any one of the methods of claims 56-74.

76. A method for treating cognitive symptoms of a condition or disease associate with $A\beta$ in a subject, comprising administering to the subject an effective amount of an anti- $A\beta$ antibody that has greater affinity for soluble $A\beta$ than 10^{-9} M.

77. A method for reducing disease progression in a subject having a condition or disease associate with $A\beta$, comprising administering to the subject an effective amount of an anti- $A\beta$ antibody that has greater affinity for soluble $A\beta$ than 10^{-9} M.

78. A method for treating cognitive symptoms of a condition or disease associated with $A\beta$ in a subject, comprising administering to the subject an effective amount of an anti- $A\beta$ antibody that has affinity (KD) for soluble $A\beta1-40$ or $A\beta1-42$ higher than 10^{-9} M.

79. A method for reducing disease progression in a subject having a condition or disease associate with $A\beta$, comprising administering to the subject an effective amount of an anti- $A\beta$ antibody that has affinity (KD) for soluble $A\beta1-40$ or $A\beta1-42$ higher than 10^{-9} M.

80. A method for treating cognitive symptoms of a condition or disease associated $A\beta$ in a subject, comprising administering to the subject an effective amount of an anti- $A\beta$ antibody that has greater affinity for soluble $A\beta$ than antibody 266 has.

81. A method for reducing disease progression in a subject having a condition or disease associate with $A\beta$, comprising administering to the subject an effective amount of an anti- $A\beta$ antibody that has great affinity for soluble $A\beta$ than antibody 266 has.

82. The method any one of claims 76-81, wherein the anti- $A\beta$ antibody has greater affinity for soluble $A\beta$ than 10^{-10} M.

83. The method of claim 82, wherein the anti- $A\beta$ antibody has greater affinity for soluble $A\beta$ than 10^{-10} M.

84. The method of claim 83, wherein the anti-A β antibody has greater affinity for soluble A β than 10^{-12} M.

85. The method of any one of claims 76-84, wherein the affinity of the anti- A β antibody is measure with respect to soluble A β 1-40 or A β 1-42.

86. The method of any one of claims 76-85, wherein the subject is human and the anti- A β antibody is human or humanized antibody.

87. The method of any one of claims 76-86, wherein the anti- A β antibody recognizes the same epitope that antibody 266 recognizes or competes with antibody 266 for binding to soluble is a human A β .

88. The method of any one of claims 76-87, wherein the condition or disease is Alzheimer's disease.

89. The method of any one of claims 76-87, wherein the condition or disease is Down's syndrome.

90. The method of any one of claims 76-87, wherein the condition or disease is cerebral amyloid angiopathy.

91. The method of any one of claims 76-87, wherein the condition or disease is vascular dementia.

92. The method of any one of claims 76-87, wherein the condition or disease is mild cognitive impairment.

93. The use of an anti-A β antibody having affinity (KD) for soluble A β 1-40 or A β 1-42 higher than 10^{-9} M to prepare a medicament for treating cognitive symptoms of a condition or disease associate with A β .

94. The use of an anti-A β antibody having affinity (KD) for soluble A β 1-40 or A β 1-42 higher than 10^{-9} M to prepare a medicament for reducing disease progression in a subject having a condition or disease associate with A β .

95. The use of an anti-A β antibody having affinity for soluble A β than antibody 266 has to prepare a medicament for treating cognitive symptoms in a subject having a condition or disease associated with A β .

96. The use of an anti-A β antibody having greater affinity for soluble A β than antibody 266 has to prepare a medicament for reducing disease progression in a subject having a condition or disease associate with A β .

97. The use of an anti-A β antibody to prepare a medicament for use in a method of any one of claims 76.

98. A method to diagnose preclinical or clinical Alzheimer's disease in a subject, which method comprises administering to said subject an amount of an antibody which specifically binds an epitope contained within positions 13-28 of A β or an antibody that sequesters A β peptide from its bound, circulating form in the blood and alters clearance of soluble and bound forms of A β in the central nervous system in plasma; effective to alter the levels of circulating A β peptides in the blood of said subject when said subject is in a preclinical or clinical stage of Alzheimer's disease, followed by measuring the level of, A β_{40} , A β_{42} , or the ratio of A β_{40} /A β_{42} in the blood of said subject at a time interval after said administering; and comparing the level of A β_{40} , A β_{42} , or the ratio of A β_{40} /A β_{42} in said subject with a control value of said levels, wherein differing levels of A β_{40} , A β_{42} or A β_{40} /A β_{42} ratio in said subject as compared to control levels or ratio identifies said subject as in a preclinical or clinical stage of Alzheimer's disease.

99. The method of claim 98, wherein said time interval is less than 1 week.

100. The method of claim 98, wherein said time interval is less than or equal to 24 hours.

101. The method of claim 100, wherein the time interval is less than or equal to 3 hours.

102. The method of claim 98, wherein said administering is by injection of said antibodies.

103. The method of claim 98, wherein the subject is human and the antibody is a humanized antibody or a fragment thereof.

104. The method of claim 103, wherein the humanized antibody or fragment thereof comprises a light chain of the antibody sequence.

105. The method of claim 98, wherein said antibody is a fragment.

106. The method of claim 98, wherein the antibody specifically binds to an epitope of A β to which antibody 266 specifically binds.

107. The method of claim 98, wherein the antibody is a single-chain antibody.

108. A kit for the diagnosis of clinical or preclinical Alzheimer's disease in a subject which comprises a container containing an antibody which specifically binds an epitope contained within positions 13-28 of A β or an antibody that sequesters A β peptide from its bound, circulating form in the blood and alters clearance of soluble and bound forms of A β in the central nervous system and in plasma and instructions for administering the antibody.

109. The kit of claim 108, which further contains a reagent for assessing the level of A β_{40} and/or A β_{42} in the blood.

110. The kit of claim 108, which further contains a description of control values for A β_{40} , A β_{42} , and/or A β_{40}/β_{42} ratios in blood of normal subjects.